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Information Sheet on  
FREEZING, PRESERVATION OF PUMPKIN PIE STOCK

Western Regional Research Laboratory, Albany, California  
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RECORD  
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CULTURE

The results of tests in this Laboratory have shown that pie stock or puree made from pumpkin or squash can be satisfactorily preserved by freezing. The tests were made on samples from several varieties and included all steps, from the preparation of raw material through the freezing and defrosting of puree and baking of pies.

Varieties and Types

The tests showed wide variation among varieties and also within varieties. The variation within a variety appeared to be due to differences in maturity. That is, certain varieties proved suitable only when mature specimens were used.

Samples that were low in solids content separated badly after they had been frozen and thawed, and pies made from these samples were watery and had a "curdled" appearance. Those that were high in solids content did not separate to a marked extent and made excellent pies.

Pumpkins and squashes containing high percentages of solids are commonly known in the trade as "dry". Golden Delicious and Buttercup are examples. These two varieties are commonly classified as squashes but, because they closely resemble pumpkins, they are used to make "pumpkin" pies. When steamed and pulped, these varieties show little tendency to flow. On the other hand a puree prepared from the low-solids Dickenson Field variety (commonly regarded as a pumpkin rather than a squash) is almost as thin as tomato juice.

Analyses of the above-mentioned Buttercup sample showed 20 percent solids and 3 percent starch as compared with 8 percent total solids and 0 percent starch for the Dickenson Field sample. It was found that a one-to-one mixture of the two varieties still had a high enough solids content to make good pies.

Different varieties vary greatly in color and thickness of skin. A great deal of labor can be saved if a variety is used that has a thin orange or yellow skin, since it does not have to be removed before pureeing. Varieties with green skins must be peeled to prevent the inclusion of this green color in the puree.

Effect of Steaming

After the whole pumpkin or squash has been cut into quarters or smaller pieces and the fiber and seeds have been removed, the pieces should be steamed just long enough to destroy the enzymes present and soften the flesh. The time

will vary from 30 to 45 minutes, depending on the thickness of the pieces. Longer steaming periods tend to cause more separation of the puree after thawing. The steaming period can probably be cut down if a retort operated under pressure is used.

After it has been steamed, the material should be air-cooled as much as is practical. Thus a large quantity of heat will be removed from the pieces before they are pureed and before the puree is frozen.

After it has cooled, the squash or pumpkin should be pureed. Use of a screen with about 0.04-inch openings is suggested.

#### Packaging

The puree can be packed either in small consumer packages or in larger institutional containers before it is frozen. If it is packed in the larger containers there will be danger of spoilage before freezing occurs if the material has not been sufficiently cooled.

#### Freezing

The packages of material should be frozen in an air blast at 0°F. or below and stored at similar temperatures.